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IRAN-IRAQ WAR: THE OIL SPILL ISSUE

SUMMARY

Despite widespread alarmist press reporting and expressions of deep concern by the western Persian Gulf states about imminent economic disruptions from the spreading oil spill from Iran's offshore Nowruz oil field, only fragments of the slick have so far come ashore on the Gulf's western coast, and the direct costs have been minor. We estimate that most of the oil has remained in Iranian waters or has beached on Iranian shores. 25X1

However, the situation appears to be degrading on the western side of the Gulf as more oil is being sighted close to the coasts of Saudi Arabia, Qatar, and Bahrain. Several desalination plants have been shut down and Saudi Arabia's largest freight port on the Gulf, at Dammam, was reported closed for six hours on 9 May due to a large oil slick passing down the coast. 25X1

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A continuation or an increase of the oil spill could cause major port closures and shutdown of additional coastal seawater desalination plants, which supply a major part of the coast's fresh water for drinking, industry, power plants, and oilfield operations. The threat to the western Gulf coast is expected to increase as summer shifts in winds and currents bring more oil westward. Of equal concern is the likelihood that the flows from the already-damaged wells will increase if burning superstructures collapse, or that continuing Iraqi attacks will cause new leaks before a cease-fire can be arranged. [redacted] 25X1

Negotiations to arrange for capping the oil leaks have so far been futile, as Iran and Iraq have refused to move from political positions linked to the wider war. Iraq has tried to use the pollution issue to gain international support for a limited cease-fire, which it hopes would lead to an end to the war. Iran has opposed any cease-fire short of total Iraqi capitulation and wants Iraq alone to announce it will guarantee safe passage for technical experts to the area. [redacted] 25X1

Teheran's current overtures to Gulf State and UN officials on oil spill and wider war issues may indicate that the spill and the threat of additional attacks on Iranian offshore oil facilities are having the effect intended by Iraq. 25X1

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Iran-Iraq War: The Oil Spill Issue

Source and Size of Spill

In March 1983, after two years of sporadic and ineffective Iraqi attacks against Iran's Khark Island and coastal oil terminals, Iraq extended its air attacks to Iran's shutdown oil platforms in the Persian Gulf. Currently, at least five wells in the Nowruz Oil Field are leaking.[1]

- One Nowruz well started leaking after a platform collapsed on 27 January 1983 as a result of damage suffered in a tanker accident two years ago; amount of spill estimated at 1,500-2,000 barrels per day (bpd).

- Four Nowruz wells on three platforms were set afire and were leaking on 2 March 1983 from Iraqi air attacks; amount of spill not known 25X1 25X1

- A Nowruz oil platform was reported set afire by Iraqi attacks on 12 April; small, but unspecified, leakage.

Iraq announced additional attacks on Nowruz field platforms on 19 April, and on platforms in both the Nowruz and Ardeshir Oil Fields on 1 May. We cannot confirm that these more recent attacks resulted in additional leaks. 25X1 only two burning platforms and one other damaged 25X1 platform in the Nowruz Field and damage to three platforms in the Ardeshir Field. 25X1

Firm data on the combined spill rate of the damaged wells are lacking; estimates by Gulf State officials and oil industry sources currently range from 4,000 to 12,000 bpd. These data suggest that the cumulative spill totaled 300,000 to 800,000 barrels by 16 May. This is a significant increment to normal

[1]The Nowruz Oil Field is located about 90 kilometers from the nearest Iraqi coast, 50 kilometers from Iran, and approximately 15 kilometers inside Iranian waters (lacking negotiated sea boundaries, the limit of Iranian waters is assumed to be the median line between the Kuwaiti and Iranian coasts). Water depths at the field are about 18 meters. 25X1

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spillage into the Gulf, which researchers estimate averages 700,000 barrels annually from tankers, offshore wells, oil terminals, industrial sites, and natural seepage.[2] Tankers have been sighted taking advantage of the spill to dump their waste oil.

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Disposition of the Oil Spill

We are unable to determine the location of the spill with precision. because spilled oil disperses in the water and much of it sinks below the surface.

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taking into account currents, winds, and onsite observations, we estimate that the current disposition of the oil is:

- 40-50 percent evaporated
- 20-25 percent beached in
  - --Iran (18-20 percent)
  - --Saudi Arabia (3 percent)
  - --Kuwait, Bahrain, Qatar (1-2 percent)
- 30-35 percent in Gulf waters, much of it near Iran (figure 3).

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Iran reported on 6 May that the oil was moving away from its shores toward the western Gulf coast, but no independent reporting is available for confirmation. Pollution monitoring specialists who are familiar with the Gulf's circulation and wind patterns believe that the risk of having a considerable quantity of oil washed up on their shores is greatest for Iran, Bahrain, Qatar, and Saudi Arabia. The risk is less for Kuwait and the Emirates. Currents are extremely complex and changeable, however, and shifts could change this risk order.

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Risks Ahead

The risk of severe damage to the Gulf states from the oil spill will become much greater if the leaks continue for many more months or if the flow rate increases substantially.

- Risk of Prolonged Leaking. Much will depend on when a cease-fire can be arranged to allow the well-capping to begin. According to reports from the Regional Organization for the Protection of the Marine Environment (ROPME), based in Kuwait, well-capping specialists have

[2]According to a research report on Gulf pollution, the two largest previous Gulf spills were 100,000 barrels in 1970 and 50,000 to 80,000 barrels in 1980.

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been on standby in the region since February. Even after a cease-fire is secured, however, up to two months will be required to cap the wells, according to oil industry sources. 25X1

- Risk of Increased Spill. Gulf oil industry experts have expressed growing concern that the platform fires may melt the well pipes down to the water's surface, which would extinguish the fires that are burning much of the escaping oil. An Iranian official stated during the first week of May that this had already happened and that the flow into the Gulf had increased to more than 7,000 bpd. 25X1 25X1

- Risk of New Attacks. Iraqi officials have made clear their intention to attack additional Iranian oil targets. Presumably, it is trying to put increasing economic and psychological pressure on Iran to end the war and to influence other nations to increase their mediation efforts. Iraq's air superiority over Iran makes additional attacks a continuing threat. We are unable to assess the severity of this risk because we do not know which wells are turned off above or below the water's surface. 25X1

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The Persian Gulf

The Persian Gulf is more vulnerable to pollution than most ocean bodies. Although nearly as large as the total area of the Great Lakes (230,000 square kilometers), it is shallow. Maximum depths are 100 meters, and large areas adjacent to the western and northern shores are less than 20 meters deep. The Gulf, therefore, holds a relatively small volume of water for its surface area and is less able to absorb a major oil spill than are deeper ocean areas. Moreover, Gulf waters circulate in a virutally closed system. Because of the high evaporation rate and small flow of rivers into the Gulf, a net flow of water enters the Gulf from the Indian Ocean. This inflow occurs at the surface, preventing floating oil from exiting. The extreme evaporation rate also makes Gulf waters highly saline, limiting the number of marine species and their tolerance to further stresses such as serious oil pollution. 25X1

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Actions to Date

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Cleanup Operations. All of the Gulf coastal countries from Kuwait to the UAE have been mobilizing against the spill since the first leak became known in early February. Each country has created a policy committee that is considering or is implementing protective measures for key facilities, such as sea water desalination and electric power generation plants. These measures include establishing offshore booms around ports and industrial facilities as well as extensive preparations for cleaning up. 25X1

Offers of Assistance. Industrial firms from many nations--including the US, Japan, Mexico, France, West Germany, and Austria--have offered their services for protective and cleanup measures. Japan seems to have taken the most comprehensive approach, 25X1 25X1

Economic Impacts

Despite press reports that the Gulf nations were in imminent danger of massive economic disruption, as of mid-May the economic effects of the oil spill were limited to the area's small fishing industry, to precautionary shut downs of several water desalination plants, and the temporary closure of the Saudi Arabian port of Dammam. If and when much larger quantities of oil begin coming ashore on the western Gulf coast, the most serious harm is likely to be more widespread disruption of fresh water supplies, which are critical to the area's economic activities and public well-being. 25X1

Impact to Date. The oil spill has probably had some effect on the Iranian coast and offshore areas. However, Iran's Gulf coast is relatively lightly populated and undeveloped. An Iranian radio broadcast on 4 May claimed that no oil pollution or harm to sea life had been noted in Iranian waters and that the slick was moving away from the Iranian coast and westward toward Qatar. 25X1 25X1

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On the more developed west coast of the Gulf, the costs are rising and have included: the expense of placing booms and nets in the water to protect coastal facilities from the approaching oil, skimming oil from near-shore areas, and precautionary shutdown of at least one seawater desalination plant, at Al Khubar, by Saudi Arabia and others by Qatar and Bahrain (figure 4). Port activities have so far been largely unaffected by the oil spill.

Ecological damage, with major economic impact on the fishing industry, has already occurred. Saudi Arabia's University of Petroleum and Minerals Research Institute has reported that Gulf waters off parts of Saudi Arabia are now devoid of any sea life. Similarly, the Kuwait Institute of Scientific Research has reported an unusual absence of fish in areas near normally productive coral reefs. Consumers' perceptions that the catches are unfit have caused Saudi Arabia to limit its fishing operations, on a scale not yet known. Qatar, on the other hand, reports that oil from the spill has not invaded its primary fishing waters east of the peninsula.

Potential Effects. An increased flow from damaged wells or even slight changes in winds or currents could result in a significantly increased threat to water supplies, electric power generation, shipping, and fishing, as well as to recreation and coastal and marine ecology.

Water Supplies. The most immediate threat from the oil spill is to the water supplies of the western Gulf states. All rely heavily for their fresh water on coastal facilities that desalinate seawater (Appendix). These plants cannot operate when oil mixes with intake water to clog filtration systems. Oil that enters the distillation unit is not removed from the water, causing damage to the plant's equipment and giving the desalted water an oily content. Water intakes are of two basic types: offshore pipelines that take in water below the surface, and canal-like surface inlets, some of which draw in millions of gallons per day. Placing booms around the intakes is only partially effective when the oil is mixed with water to several meters below the surface, as is reportedly the case with the Nowruz spill. For the smaller intakes, fine fish netting is being used to trap oil that may get by the booms.

In the event that placing booms offshore does not prove to be an effective deterrent to a heavy flow of oil, and critical plants are forced to shut down, a water shortage could emerge fairly quickly. Although water storage tanks are available, we have no information on their capacity. Vulnerable operations include electrical power plants, which rely on water for cooling, manufacturing processes, and agriculture. Offshore oil facilities are dependent on small units that supply water for

drinking and cooling equipment. Any reductions in fresh water or electricity availability would cause particularly serious problems in the upcoming summer months.

Some press sources quoting Iranian officials report that Iran is already shipping tankers of water to Bahrain, Qatar, and the UAE. These reports do not seem plausible and are probably based on Iranian propaganda.

Shipping. Even if the oil risk causes shipping costs to rise, the current oversupply of available oil tankers should ensure that tanker owners will be willing to continue operating in the Gulf. Nevertheless, disruptions to normal shipping could occur in areas where the oil sinks deep enough to clog intakes. Surface slicks are not normally a problem for vessels with deep intakes, and would not affect most oceangoing ships that visit the Gulf, the majority of which have drafts between 30 and 60 feet with cooling intakes near their keels. In any event, disruptions are more likely to occur in ports--temporarily interrupting ship loadings and unloadings--if concentrations of oil bypass the protective measures being readied. Large amounts of oil on the western Gulf could temporarily close many of the freight and oil ports of Kuwait, Saudi Arabia, Qatar, and Bahrain.

Fishing. Fishing is locally important throughout the Persian Gulf, although catches have been decreasing over the last decade due to competition with other economic sectors for labor, overfishing of some species, and pollution. The industry is composed of two main sectors: modern export-oriented shrimp fisheries, and traditional labor-intensive coastal fishing operations, which supply a significant share of animal protein in the Arabian Peninsula states. A worsening oil spill would pose two risks for the industry--damage to fishing equipment, and damage to fishing grounds themselves. If the spill gets worse, fishing in the more northwestern Gulf States is more likely to be disrupted than that in the UAE, since a large portion of the UAE fishing industry is based on the Gulf of Oman and Indian Ocean--areas that will be unaffected by the spill. Long-term impact on the industry is unlikely, unless the oil spill persists for a long period of time. Except in the case of long-term spills, most marine species can recover from a major spill in six months to two years.

Politics of the Spill

Efforts to encourage Iran and Iraq to reach an agreement that would allow capping the leak are being pursued by the Gulf nations--through the Gulf Cooperation Council and ROPME--and by the United Nations. So far, these negotiations have been futile as each side refuses to move from its political position linked to the wider war.

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Iraq's Position. Because Iraq's short coast is in little danger of pollution from the oil spill, we believe Iraq's policy is to let the oil flow and possibly to attack other Iranian offshore oil facilities and even tankers serving Iranian oil ports, all in an effort to pressure Iran into accepting a cease-fire and ending the war.

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Iran's Position. Teheran apparently believes that the current situation works more to its advantage than disadvantage. Iran has suffered no current oil loss from the oil spill--though it claims damages of $700 to 800 million--because the Nowruz and probably other off-shore fields were closed down early in the war. Iranian officials are playing down the potential effects of oil pollution on their coast. Teheran's position is that Iraq unilateraly declared the northern Gulf a war zone by its initiation of hostilities, and Iran will not consent to any agreement that implies it was at fault in the oil field incidents.

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New Developments. On 2 May, Iran invited UN observers to tour war-damaged areas, and Iraq has since agreed to a plan that the observers will inspect such areas in both countries, according to a report from the US UN Mission.

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Appendix

Importance of Desalinated Water to Specific Countries

Kuwait, due to its position near the head of the Persian Gulf and west of the Nowruz oil field, will probably receive less oil from the spill than will the nations farther south. However, Kuwait is heavily dependent on its large seawater desalination plants, having very limited supplies of domestic fresh groundwater. Kuwait has large amounts of underground brackish water, but we have no information on its capabilities to direct this water to the coastal desalination plants for treatment.

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Saudi Arabia is the major producer of fresh water from seawater. Its coastal desalination plants supply both coastal and inland needs, including part of the water supply of the capital, Riyadh. Saudi Arabia (and also Bahrain, which has little seawater desalination capacity) has substantial capacity in inland plants that treat brackish water. These could probably supply sufficient water for emergency use, but power production and industrial production would be severely dampened by reduced fresh water supplies.

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Qatar has little underground fresh water or inland desalination capacity and would likely have to import fresh water, notwithstanding a recent statement by the head of the Qatar General Petroleum Company that if the desalination plants were closed, Qatar could produce enough water from artesian wells. Most of Qatar's shallow underground water is brackish, and some of it is polluted. Recharging of underground water by seepage of rainwater produces a thin layer of relatively fresh water on the surface of the underground reservoirs; any increased use of well water would quickly degrade its quality.

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The United Arab Emirates are currently building several large desalination plants to supplement those completed in the last few years. Economic and population growth has severely strained fresh groundwater resources, which supply less than 50 percent of demand and are generally of poor quality.

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Iran has very little seawater desalination capacity. Most of it is in small plants on Khark Island and Kish Island. The former may have been shut down or not operating at full capacity throughout the war with Iraq.

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Table: Seawater Desalination Capacity on the Persian Gulf [redacted] 25X1

Location	Capacity (million gallons per day)
Kuwait	
Doha	50
Ash Shu'aybah South	37
Ash Shuwaykh	26
Other plants	22
Saudi Arabia	
Al Jubayl	235
Al Khubar	57
Others	11
Bahrain (All plants)	5
Qatar	
Ra's Abu Fantas	35
Doha	12
Others	8
UAE	
Abu Dhabi	80
Dubayy	47
Ash Shariqah (Sharjah)	13
Other plants	16
Iran	
Jazireh-ye Khark (Khark Island)	2
Jezireh-ye Kish (Kish Island)	2
Other plants	11
TOTAL	669

[redacted] 25X1

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